

City of Chandler



2004 ANNUAL DRINKING WATER QUALITY REPORT





The City of Chandler Municipal Utilities Department is committed to providing a safe supply of drinking water to our customers. As a result of this strong commitment, the City of Chandler routinely performs more tests on the water residents receive than is required by law. We are proud to report that Chandler's water meets, or exceeds, all health and safety standards set by the county, the state, and the federal government regulatory agencies. The United States Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ), and the Maricopa County Environmental Services Department (MCESD)

require the City of Chandler prepare an annual drinking water quality report for the year 2004. This brochure provides valuable information about your drinking water, including information about its source and quality. Tables contained in this brochure summarize the most recent analytical tests conducted in either 2003 or 2004 on Chandler's drinking water. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative, is more than one year old.

Este informe contiene información importante acerca de su agua potable. Usted puede también visit nuestro sitio web en <http://www.chandleraz.gov>

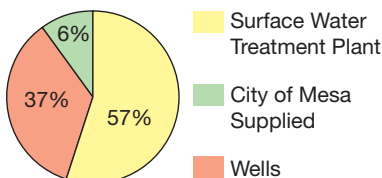
ABOUT YOUR WATER SUPPLY

The City of Chandler receives its water from three sources: Chandler's surface water treatment plant, groundwater, and Central Arizona Project (CAP) exchange water from Mesa.

- The surface water treatment plant treats and disinfects water from the Salt River, Verde River, the CAP (Colorado River), and Salt River Project (SRP) wells that is transported to Chandler through the Consolidated Canal.
- 23 wells supply groundwater from aquifers underlying Chandler. Groundwater is disinfected with chlorine prior to being introduced into the City's water distribution system.
- Chandler also receives water from the City of Mesa as part of an agreement to treat and distribute Colorado River water from the Central Arizona Project.

CITY OF CHANDLER WATER SUPPLY NUMBERS

- 18.74 billion gallons of drinking water was supplied to Chandler water users in 2004. (An average of 51.2 million gallons each day!)
- Chandler's Surface Water Treatment Plant produced 10.59 billion gallons, which is 56.5 % of the City's total drinking water.
- Groundwater wells produced 6.97 billion gallons, which is 37.2% of the City's total drinking water.
- The City of Mesa supplied 1.18 billion gallons, which is 6.3% of the City's total drinking water.



DRINKING WATER AND YOUR HEALTH

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791). Information on bottled water can be obtained from the United States Food and Drug Administration (1-888-463-6332).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ trans-

plants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or the result of oil and gas production and mining activities.

In order to ensure tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Contaminants of concern for drinking water are subject to regulatory requirements for analysis on three-year cycles. In 2003, the City of Chandler sampled all of its water sources for applicable contaminants.

Cryptosporidium and Giardia

The City of Chandler routinely samples its water for the presence of the protozoans *Cryptosporidium* and *Giardia*. Though rare, *Cryptosporidium* and/or *Giardia* have been identified in the source water Chandler receives from the Consolidated Canal. They have never been detected in 'finished' water provided to Chandler residents. The filtration system in the City's Surface Water Treatment Plant exceeds EPA requirements for removal of *Cryptosporidium* and *Giardia*.

Nitrate

The highest nitrate level measured in the City of Chandler's water during 2004 was 9.2 parts per million (ppm). The average was 3.5 ppm, well below the USEPA limit of 10 ppm. We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. We did not collect quarterly nitrate monitoring samples from one well for the second, third, and fourth quarters of 2002, and therefore cannot be sure of the quality of your drinking water during that time. We became aware of the omission of quarterly nitrate monitoring for the well on March 28, 2005. This triggered an analysis of the historical data files and it was discovered that quarterly nitrate sampling has been continuous since the first quarter of 2003. The drinking water monitoring schedule is now updated on a quarterly basis to ensure the City complies with all monitoring requirements for nitrate. Nitrate samples collected from this well prior to and after 2002 indicate nitrate concentrations well below the maximum contamination level of 10 mg/L. Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Radon

Radon is a naturally occurring radioactive gas formed by the natural decay of uranium and radium in the earth. In November 1999, the EPA proposed regulations limiting the amount of radon in drinking water. At the time of this writing, the final radon level has yet to be announced, but the proposed maximum contaminant level for radon in Arizona is 4000 picocuries per liter (pCi/L). The City of Chandler tested all its water sources for radon in 1999 and 2000. The average radon concentration is less than 300 pCi/L for all water sources, and the average for any individual well does not exceed 1500 pCi/L.

MTBE

To improve air quality in the Phoenix Metropolitan area, an oxygenating compound, Methyl Tertiary Butyl Ether (MTBE), is added to gasoline to reduce automobile exhaust emissions. MTBE contamination has occurred in water supplies nationally. The City of Chandler tested all its water sources for MTBE in 2003 and is pleased to announce MTBE was not detected in our water.

Arsenic

The EPA finalized new regulations for arsenic in drinking water in 2001. These new regulations take effect on January 23, 2006 and will lower the maximum contaminant level (MCL) for arsenic from 50 parts per billion (ppb) to 10 ppb. The City is in full compliance with the existing standard and has achieved compliance with the new standard at the Surface Water Treatment Plant and many of the water supply wells. The City is moving forward with design and construction of arsenic treatment processes to ensure all water production wells meet the 2006 standard. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Lead and Copper Testing

Lead and copper in drinking water is derived from either naturally occurring deposits or from the corrosion of household plumbing systems. Federal regulations require all cities test for lead and copper at selected customer's taps at least once every three years. In the summer of 2004, Chandler conducted one round of lead and copper tap sampling. The next round of lead and copper sampling will be in June-September 2007. The concentrations of both lead and copper in the City's drinking water are well below regulatory levels.

Turbidity

Turbidity is the cloudiness of the water. Turbidity has no health effects. However, high levels of turbidity can interfere with disinfection and provide a medium for microbial growth. We monitor turbidity because it is a good indicator of the effectiveness of our filtration system.

PROTECTING CHANDLER'S WATER SUPPLY

Backflow Prevention

The City of Chandler has a backflow prevention program that ensures proper installation and maintenance of thousands of backflow prevention devices throughout the City. These devices ensure hazards originating on customers' premises and from temporary connections do not impair or alter the water in the City's water distribution system. The return of any water to the City's water distribution system after the water has been used for any purpose on the customer's premises or within the customer's piping system is unacceptable. Backflow prevention devices range from vacuum breakers on household hose bibs to large commercial reduced-pressure principal devices found throughout the City.

Source Water Assessment and Protection Program (SWAP)

The Arizona Department of Environmental Quality (ADEQ) completed a source water assessment for the drinking water wells and surface water sources for Chandler's public water system in 2005. The assessment reviewed adjacent land uses that may pose a potential risk to water sources. These risks include, but are not limited to, gas stations, landfills, dry cleaners, agriculture fields, wastewater treatment plants, and mining activities. Once ADEQ identified the adjacent land uses, they were ranked on their potential to affect the water source.

The assessment has designated water from the CAP aqueduct to have a high risk because the source water is often stored in Lake Pleasant prior to being transported to the City's water treatment plant. There have been reportable releases or spills of a substance at a facility near the lake that have not been reported as being remediated. The spill at this facility makes the CAP source water susceptible to potential future contamination.

ADEQ currently plans to re-assess source water from the SRP canals. Since Chandler uses SRP canal water, the Source Water Assessment ADEQ prepared for Chandler's public water system may be revised.

Two of Chandler's drinking water wells were deemed to be at high risk based on adjacent land use (ALU) criteria. The Chandler public water system conducts regular monitoring of drinking water entering the water distribution system to determine if land uses have impacted the source water. If any contaminant approaches the drinking water MCL, the well is remediated or removed from service.

The complete report is available for inspection at ADEQ, 1110 W. Washington, Phoenix, Arizona 85007, between the hours of 8:00 a.m and 5:00 p.m. Electronic copies are available from ADEQ at dml@azdeq.gov. For more information, visit ADEQ's Source Water Assessment and Protection Unit website at www.azdeq.gov/enviro/water/dw/swap.html, or contact the City of Chandler Water Quality Division at 480-782-3660. You can also visit our website at www.chandleraz.gov.



YOU AND YOUR WATER SUPPLY

Stormwater runoff from polluted areas can find its way into rivers and underground water supplies. When a drinking water supply becomes polluted, it requires considerable expense and effort to restore it to a usable drinking water source. Pollution prevention requires a collective effort and saves money, preserves limited water resources, and helps ensure safe drinking water.

Guidelines for Everyday Pollution Prevention:

- Use fertilizers and pesticides sparingly and support other practices that protect your watershed.
- Pick up after your pet and don't dispose of any waste in washes, canals, or riverbeds.
- Minimize your purchase and use of hazardous products. Dispose of unused quantities properly.
- Take used motor oil and similar fluids to the City's Household Hazardous Waste Collection events.
- Let government representatives know that protective laws and adequate funding for research, inspection, and enforcement are important to you.

SEASONAL CHANGES IN FLAVOR

The flavor of Chandler's water may change at certain times of the year, depending on the water source. For example, late summer algae growing in canals may give the water a slightly musty flavor. You also may detect a change in the taste of the water when Chandler switches to well water as its primary source. This normally happens when SRP dries up canals for routine maintenance.

Chandler works with SRP to minimize algae in the canal system and provides treatment at the Surface Water Treatment Plant to help reduce off-flavors and odors. Also, the flavor of Chandler's water is monitored by a "Flavor Panel" that meets weekly to taste and evaluate water samples from a variety of sources. The panel is trained to recognize different flavors and odors. Many treatment plant changes made to enhance the quality of the water are based on the recommendations from this panel.

WHO DO I CONTACT WITH QUESTIONS ABOUT CHANDLER'S DRINKING WATER?

If you have any questions about your tap water or the information in this report, please call 480-782-3660 during normal business hours (8:00 a.m. to 5:00 p.m., Monday through Friday). You can also visit our website at <http://www.chandleraz.gov>.

Citizens who wish to address the City Council about water issues may do so at regularly scheduled City Council meetings normally held the 2nd and 4th Thursdays of each month. The location is the Downtown Library, 22 S. Delaware St., 2nd floor City Council chambers. For information about specific meeting times and agenda items, please contact the City of Chandler's City Clerk office at 480-782-2180, or visit www.chandleraz.gov and click on Council Agenda in the Quicklinks section of the home page.

Detected Regulated Contaminants 2004:

Contaminant (units)	MCL	MCLG	High (of range)	Range (Low to high)	Likely Source
Arsenic (ppb)	50	N/A	20	1 - 20	Erosion of natural deposits
Barium (ppm)	2	2	0.15	<0.01 - 0.15	Erosion of natural deposits
Chromium (ppb)	100	100	30	<5 - 30	Erosion of natural deposits
Fluoride (ppm)	4	4	1.5	0.33 - 1.5	Erosion of natural deposits
Nitrate (ppm)	10	10	9.2	0.31 - 9.2	Erosion of natural deposits
Selenium (ppb)	50	50	2.0	<2 - 2	Erosion of natural deposits
Benzo(a)pyrene (ppt)	200	0	20	<20 - 20	Leaching from water tanks and distribution lines
Di(2-ethylhexyl) phthalate (ppb)	6	0	1.7	<0.6 - 1.7	Plastic pipes
Hexachlorocyclopentadiene (ppb)	50	50	0.33	<0.1 - 0.33	Discharge from chemical factories
Alpha Emitters (pCi/L)	15	0	13.9	1.1 - 8.2	Erosion of natural deposits
Combined Radium (pCi/L)	5	0	0.7	0.2 - 0.7	Erosion of natural deposits
Uranium (pCi/L) (2003 & 2004)	30	0	11.5	<0.779 - 11.5	Erosion of natural deposits

Distribution System Detections 2004:

Contaminant (units)	Maximum Contaminant Level	MCLG	Results	Sources in Drinking water
Total Coliform Bacteria	No more than 5% of the monthly samples may be total coliform positive	0.0 %	0.26 %	Naturally present in the environment
Chlorine (ppm)	Maximum 4.0 mg/L Minimum 0.2 mg/L (MRDL = Annual moving average)	MRDLG N/A	1.5 annual avg. 0.34 minimum	Water additive used to control microbes
Turbidity (NTU)	TT = 1.0 NTU MAX TT = < or = 0.3 NTU 95% of the time	N/A	0.14 100 %	Soil runoff
Total Trihalomethanes (TTHMs) (ppb)	Running Annual Average of 80 ppb Range (low to high)	N/A	25.4 0.57 - 130	By-product of drinking water disinfection
Haloacetic Acids (HAA) (ppb)	Running Annual Average of 60 ppb Range (low to high)	N/A	17.4 <0.5 - 180	By-product of drinking water disinfection

Lead and Copper Study 2004:

Contaminant (units)	Maximum Contaminant Level	MCLG	Results	Sources in Drinking water
Lead (ppb)	Action level = 15 ppb 90th percentile Number of sites exceeding action level	0 mg/L	5.3 1	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	Action level = 1.3 mg/L 90th percentile Number of sites exceeding action level	1.3 mg/L	0.23 0	Corrosion of household plumbing systems; Erosion of natural deposits

Definitions:

Parts per million (ppm): Parts per million are a measurement of concentration of substances dissolved in water. One ppm is equivalent to one gallon in one million gallons. Parts per billion (ppb): Parts per billion are a measurement of concentration of substances dissolved in water. One ppb is equivalent to one gallon in one billion gallons. A ppb is one thousand times smaller than a ppm.

Picocuries per liter (pCi/L): A measure of the radioactivity of a substance.

Nephelometric Turbidity Unit (NTU): A measurement of the relative clarity of drinking water.

Non-Applicable (N/A): EPA has not set MCLs or MCLGs for these substances.

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a

margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

High (of range): The highest analytical result reported for the monitoring period.

Range (low to high): The lowest analytical result reported to the highest analytical result reported. All other analytical results fall between these two numbers.